

Certificate of Analysis

Standard Reference Material® 991

Lead–206 Assay and Isotopic Standard

This Standard Reference Material (SRM) is intended for use as an assay and isotopic standard. SRM 991 consists of a solution of lead nitrate sealed in quartz ampoules. Each ampoule contains a nominal 15 g of solution, 0.5N in nitric acid. The certified isotopic compositions are given below together with the atomic weight of lead.

Molality of Lead: $0.32261 \text{ mmol/kg} \pm 0.00032 \text{ mmol/kg}$

Isotopic composition:

 204 Pb, Atom Percent < 0.0003 206 Pb, Atom Percent 99.979 \pm 0.002 207 Pb, Atom Percent 0.008 \pm 0.001 208 Pb, Atom Percent 0.013 \pm 0.001

Atomic Weight: 205.975

The concentration of lead in SRM 991 was determined by an isotope dilution mass spectrometry (IDMS) technique. A correction for isotopic fractionation was checked by analyzing SRM 981. The indicated uncertainty for the concentration is the 95 % tolerance limit [1,2] for coverage of at least 99 % of measured values of this lot of ampoules of SRM 991. The measured values should fall within the indicated tolerance limits with a confidence coefficient of 95 %.

The mass spectrometric measurements were made by L.J. Moore and J.W. Gramlich of the NIST Analytical Chemistry Division. The solutions measured were prepared by L.A. Machlan of the NIST Analytical Chemistry Division.

The overall direction and coordination of the technical measurements leading to certification were under the chairmanship of I.L. Barnes of the NIST Analytical Chemistry Division.

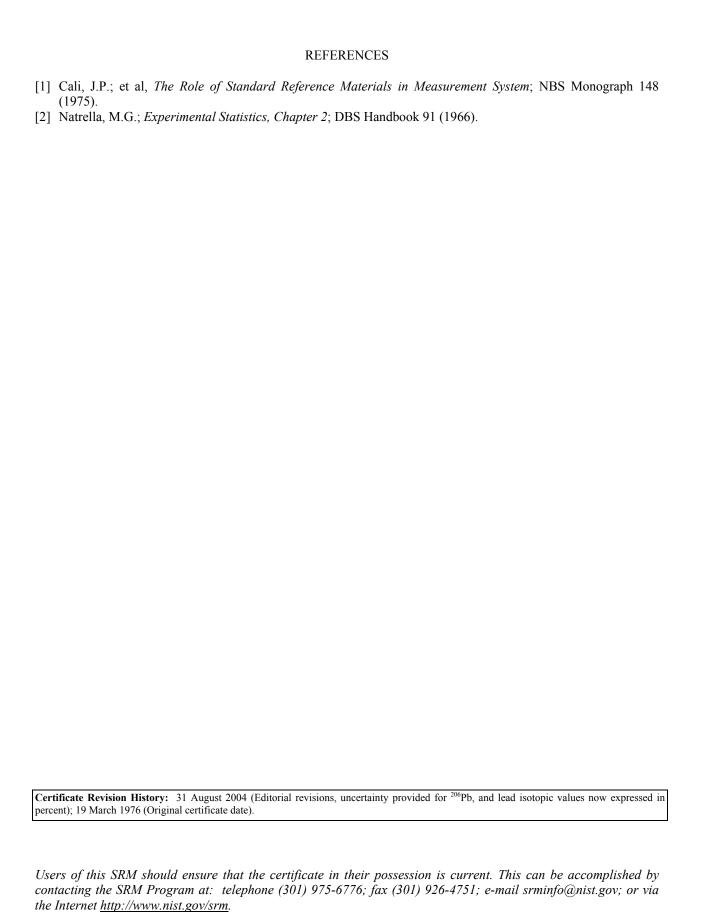
The technical and support aspects concerning the preparation, certification, and issuance of this SRM were coordinated through the Office of Standard Reference Materials by W.P. Reed. Revision of this certificate was coordinated through the NIST Standard Reference Materials Program by B.S. MacDonald of the NIST Measurement Services Division.

This Certificate of Analysis has undergone editorial revision to reflect program and editorial changes at NIST and the Department of Commerce.

Willie E. May, Chief Analytical Chemistry Division

Gaithersburg, MD 20899 Certificate Issue Date: 31 August 2004 See Certificate Revision History on Last Page Robert L. Watters, Jr., Acting Chief Measurement Services Division

SRM 991 Page 1 of 2



SRM 991 Page 2 of 2